

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
ON APPEAL FROM THE EXAMINER TO THE BOARD
OF PATENT APPEALS AND INTERFERENCES**

In re Application of: Richard Harvey et al.
Serial No.: 10/648,140
Filing Date: August 25, 2003
Group Art Unit: 2164
Examiner: Alicia M. Lewis
Confirmation No.: 3247
Title: WEB SERVICES APPARATUS AND METHODS

MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

APPEAL BRIEF

Appellants have appealed to the Board of Patent Appeals and Interferences ("*Board*") from the Final Office Action dated May 15, 2008 ("*Final Office Action*") and the Advisory Action dated August 13, 2008. Appellants filed a Notice of Appeal and Pre-Appeal Brief on September 15, 2008 with the statutory fee of \$510.00. This Appeal Brief is filed in response to Notice of Panel Decision from Pre-Appeal Brief Review dated November 6, 2008, finally rejecting Claims 1-17.

Real Party In Interest

This Application is currently owned by Computer Associates Think, Inc. as indicated by:

an assignment recorded on 06/23/2004 from inventors Richard H. Harvey and Timothy Bentley to Computer Associates Think, Inc., in the Assignment Records of the PTO at Reel 015502, Frame 0237 (5 pages).

Related Appeals and Interferences

To the knowledge of Appellants' counsel, there are no known interferences or judicial proceedings that will directly affect or be directly affected by or have a bearing on the Board's decision regarding this Appeal.

Status of Claims

Claims 1-17 are pending and stand rejected pursuant to a Final Office Action dated May 15, 2008 ("*Final Office Action*") and a Notice of Panel Decision from Pre-Appeal Brief Review dated November 6, 2008 ("*Panel Decision*"). Specifically, Claims 1-17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0019827 issued to Shiman, et al., ("*Shiman*") in view of U.S. Patent Application Publication No. 2004/0002955 issued to Gadbois ("*Gadbois*"). For the reasons discussed below, Appellants respectfully submit that the rejections of Claims 1-17 are improper and should be reversed by the Board. Accordingly, Appellants present Claims 1-17 for Appeal. All pending claims are shown in Appendix A, attached hereto.

Status of Amendments

All amendments submitted by Appellants have been entered by the Examiner.

Summary of Claimed Subject Matter

According to an embodiment of the present disclosure, a repository layer is created above users so each repository can be placed on a different server. This Repository layer includes one or more Directory nodes which collectively form the Directory pre-fix. This may also be known as 'Domain' or 'Name' of the Repository. An advantage of this is that it provides a single place to hold information about a domain. The name of this node represents the Directory prefix. (Page 7, lines 19-25.)

A user object may be created to hold the data representing a UDD1 account. An advantage of this is that it provides a single place to hold information about a user/account. (Page 7, lines 26-28.)

Business Entity object(s) may be arranged under User object(s), Business Service object(s) under Business Entity object(s), and Binding Template object(s) under Business Service object(s). An advantage of this is that a repository or 'domain' layer above the user object layer enables a number of repositories to be posted or logically connected together. The domain layer may be arranged in a number of levels, for example having different countries, AU, US, EP, etc., organized by continent. (Page 7, line 29 - page 8, line 2.)

Another advantage is that this feature may be given effect by use of the Distribution features of an X500 Directory. For example, to implement this, a 'World,' or 'Corporation' Node is placed at the top of the virtual Directory tree, and a uniquely named Node is placed at the top of each UDDI sub-tree (UDDI Name Space). While invisible to users, these 'Node' prefixes allow a UDDI repository to leverage Directory distribution. (Page 8, lines 3-8.)

According to an embodiment of the present disclosure, the Business Entity objects can be made a child of the user object. Having a user/account over the Business Entity, Business Service and Binding Template hierarchy gives the effect of each user having their own sub-tree. This enhances manageability and security. The user is readily restricted to modifying and / or controlling only their own sub-tree. This also enhances performance by making use of Directory sub-tree search operations. (Page 8, lines 9-15.)

According to an embodiment, TModels defined by a user can be made children of the user object, thus makes security easy to implement. This enhances manageability and security since the user can only modify and / or control their own sub-tree. It also enhances performance by making use of Directory sub-tree search operations. (Page 8, lines 16-20.)

A careful design of the data representation would be beneficial to give the functionality and performance required of a UDDI repository. (Page 15, lines 4-5.)

The following description refers to various UDDI concepts. A more detailed description of these UDDI concepts can be gained by reference to the UDDI specifications (<http://www.uddi.org/specification.html>). (Page 15, lines 6-8.)

A schema, in Directory parlance, is a description of the data elements that can be stored in the Directory, and how those elements may be connected together. This includes descriptions of each of the possible attributes (an attribute holds a single piece of data), descriptions of the various objects (an object is a collection of attributes), and specifications of the possible object hierarchies. The particular Schema notation used in this specification is the one used by eTrust Directory, a product of Computer Associates International Inc. 'eTrust' is a product name and trademark of Computer Associates International Inc. Of course, other Schema notations may be used. (Page 15, lines 9-17.)

The present disclosure describes a Schema used to implement a UDDI repository using a Directory as the data store. There are a number of concepts involved in this Schema. There are also a number of techniques used to enhance the operation of the UDDI implementation. The following is a brief description of some of these concepts. A more detailed description of these concepts and techniques will be described later below when describing embodiments of the present disclosure. (Page 15, lines 18-24.)

The present Schema is designed to provide optimized operation. The present Schema design, which includes the definition of Attributes, Object Classes, Entries and the Hierarchy, is embodied in a manner that enhances operation. The present Schema design provides significant advantages in, at least, security, performance, manageability, and distribution. (Page 15, lines 25-29.)

The hierarchy of the system will now be described. An X.500 Directory supports distribution internally, providing a distributed UDDI repository without any coding at the UDDI level. A level divides the contents of the repository. The (optional) domain level of this schema provides that level, each domain entry, and all of the entries below it, can be placed on a separate Directory server transparently to the UDDI-level programming. Figure 11 illustrates an embodiment of this aspect of the present disclosure. This will be described in more detail later below. (Page 15, line 30 - page 16, line 4.)

According to an embodiment of the present disclosure, a user object is placed over the business and TModel objects. The user object provides a place for the storage of information relating to the user. It also provides an anchor point for all of the data published by the user. Figure 10 illustrates an embodiment of this aspect of the present disclosure. This will be described in more detail later below. (Page 16, lines 5-10.)

Security is facilitated in this domain / user hierarchical system. A UDDI implementation can enforce that a user has control over their sub-tree of data objects. (Page 16, lines 11-13.)

Searching for user controlled entries is provided. Searching for data controlled by this user can be enhanced by using a sub-tree search under the user object. (Page 16, lines 14-16.)

It is possible to find a business by specifying, for example, a TModel that occurs in a Binding Template. This equates to “finding x by finding one (or more) of its children”. In other words, a query may be “find all businesses which have a service which has a Binding Template which references this TModel”. Such queries are done by finding the DN (Distinguished Name) of the descendent object, and discarding the unwanted levels, to yield the DN of the Business Entity. It is also possible to do duplicate elimination in this manner. This find feature comes about due to the hierarchical nature of the structure of the present disclosure. (Page 16, lines 17-25.)

Searching may be performed using attributes unique to an object class. This is an optimization that has two advantages. This simplifies the writing of searches, and yields superior performance through the elimination of ‘weak’ clauses. A ‘weak’ clause is a part of a filter that returns a large number of entries, or which refers to an attribute that is part of many entries. A design which used the same attribute name for every Name would have two choices when searching, for a Business Entity by name: it includes the object class in the search or filter the results of the search. The former is only possible if business names had a unique object class, and even so, object class is a weak clause, incurring more overhead. The latter means extra code and the potential for returning a result list much larger than the desired result. (Page 16, line 26 - page 17, line 3.)

For example, consider a company called “McKenna’s Testing Services” which offers a wide range of Web Services, all of which include “McKenna’s” in their name – a search for business entities with “McKenna’s” in their name would return intermediate results for all of

the services as well. These intermediate results may be eliminated, but dealing with them reduces performance. (Page 17, lines 4-8.)

It is preferable to be able to specify an attribute name in a search and have that attribute name uniquely identify the object class being sought. To continue the example above, the search is much simpler if we can specify: (euBusinessEntityName = McKenna's*) (Page 17, lines 9-12.)

Such a design produces strong searches, which are efficient because they are searching only the desired area. Strong searches include searches which return a small number of entries. The Directory can index the euBusinessEntityName attribute, and return results from that index – this produces good performance, and avoids handling unnecessary intermediate results. (Page 17, lines 13-18.)

For simple queries, such a design means that a search for a Business Entity name is a single clause, rather than the compound that might be necessary in another design. Imagine if the name attribute were called euName, and the Business Entity name object were called euBusinessEntityName. That would yield a search like:

(&(euName = McKenna's*)(oc=euBusinessEntityName)) (Page 17, lines 19-24.)

There is an even more simple design, wherein all names are stored in the same object class. This means that the search reduces to (euName=McKenna's*) again, but now we wade through results for all names, trying to locate those which have a parent object that is a Business Entity – this last design would yield potentially poor performance, and rather more complex programming. (Page 17, lines 25-30.)

Shadow attributes may be used for case-sensitivity. It is far from trivial to provide both case-sensitive and case-insensitive searching using a single index. One option is to index case-insensitively, then scan the results case-sensitively. Another solution here is to index the original data case-sensitively, and to add a second attribute (in which the same data is stored) which is indexed case-insensitively. Then all that is required is to choose the appropriate attribute to search depending on the find qualifiers. (Page 17, line 31 - page 18, line 4.)

Every attribute in this design may be single-valued. This allows efficient indexing, higher performance, and stronger searches. (Page 18, lines 5-6.)

Using multi-valued attributes makes ambiguous searches possible. That is, it is possible to get search results which are counter-intuitive, and unintended. Imagine a multi-valued numeric attribute, called 'n', and an entry which contains this attribute with the values 2 and 5;

this entry will be returned in response to a search ($(n < 3)(n > 4)$), which is not something that would be readily anticipated. (Page 18, lines 7-11.)

Single-valued attributes are one of the techniques used for strong searches. A strong search is one which can eliminate the majority of candidate results through the index. Strong searches are a key to improved performance. (Page 18, lines 12-14.)

Aliases may be used for service projection. This is a significant benefit of using an X.500 Directory as the data store. A service projection can be represented neatly using an X.500 alias. This has the major advantage of guaranteeing data integrity. The alias accesses the original data, so any change to the original is instantly reflected by the alias. If the Directory implementation supports alias integrity, then when the original entry is deleted the alias vanishes without additional work. (Page 18, lines 15-21.)

Publisher Assertions are one of the least clearly defined elements in the UDDI Standard, and they require careful design. An inappropriate implementation could readily yield poor performance. (Page 18, lines 22-24.)

Because the most common use of Publisher Assertions is the `find_relatedBusiness` API, which is searching for all the completed Publisher Assertions relating to a specified Business Entity, it is good design to place each assertion under a Business Entity to which it refers. (Page 18, lines 25-28.)

By calculating the status of the assertion, and storing it in the assertion object, it is possible to restrict a search to completed Publisher Assertions. This means that the results returned will not contain spurious references that are to be removed. (Page 18, lines 29-32.)

Storing the relationship object as an auxiliary class allows the search to eliminate any assertion which has an unwanted relationship. If the relationship were stored as a child object, it would not be possible to write a single search that would address both the relationship and the assertion completion status. (Page 19, lines 1-4.)

UDDI keys may be used for naming where present. UDDI defines keys for many of the important object classes, and these keys are specified as being guaranteed to be unique. This means that the keys can be used as the naming attributes for the objects. Using the UDDI keys as the naming attributes means that there is no need to attempt resolution of naming clashes – that would be required if, for example, the default name were used as the naming attribute for a Business Entity. (Page 19, lines 5-11.)

Keys may be provided for naming where not present. That is, not all UDDI objects have defined keys. An example is Publisher Assertions. For these, the present system provides a key, using the same algorithm as is used for the UDDI-defined keys. This re-use of the idea means that code and structure written for the other objects can be re-used. (Page 19, lines 12-16.)

Where a series of UDDI objects are children of another object, and the order of the children is important (address lines, for example), the keys assigned to the child objects are arranged to be monotonically increasing in value, so that sorting on the keys yields the desired order. This simplifies the process of ensuring the desired order. (Page 19, lines 17-21.)

With regard to the independent claims currently under Appeal, Appellants provide the following concise explanation of the subject matter recited in the claim elements. For brevity, Appellants do not necessarily identify every portion of the Specification and drawings relevant to the recited claim elements. Additionally, this explanation should not be used to limit Appellants' claims but is intended to assist the Board in considering the Appeal of this Application.

For example, Claim 1 recites:

A method for use in a Web Services system (e.g., Figure 15, reference numerals 151-153; Page 15, line 9 through Page 17, line 30; Page 27, lines 23-30; Page 43, line 4 through Page 45, line 14), comprising:

providing a Web Services Directory having object classes and attributes (e.g., Page 15, lines 9-17; Page 27, lines 23-30; Page 43, line 4 through Page 45, line 14); and

defining attributes of a specific type which correspond to a specific object class, each attribute unique to the specific object class to which the attribute belongs (e.g., Page 16, line 26 through Page 17, line 30; Page 27, lines 23-30; Page 43, line 4 through Page 45, line 14); and

generating an index based on the specific attribute types (e.g., Page 16, line 26 through Page 17, line 30).

As another example, Claim 7 recites:

A computer recording medium including computer executable code for use in a Web Services system (e.g., Figure 15, reference numerals 151-153; Figure 18, reference numeral 180; Page 7, lines 14-18; Page 15, line 9 through Page 17, line 30; Page 27, lines 23-30; Page 43, line 4 through Page 45, line 14), comprising:

code for providing a Web Services Directory having object classes and attributes (e.g., Page 15, lines 9-17; Page 27, lines 23-30; Page 43, line 4 through Page 45, line 14); and

code for defining attributes of a specific type which correspond to a specific object class, each attribute unique to the specific object class to which the attribute belongs (e.g., Page 16, line 26 through Page 17, line 30; Page 27, lines 23-30; Page 43, line 4 through Page 45, line 14); and

code for generating an index based on the specific attribute types (e.g., Page 16, line 26 through Page 17, line 30).

As still another example, Claim 13 recites:

A method for use in a Web Services system (e.g., Figure 15, reference numerals 151-153; Page 15, line 9 through Page 17, line 30; Page 27, lines 23-30; Page 43, line 4 through Page 45, line 14), comprising:

providing a Web Services Directory having a plurality of object classes, the plurality of object classes having a plurality of attributes, each attribute unique to an object class (e.g., Page 15, lines 9-17; Page 16, line 26 through Page 17, line 30; Page 27, lines 23-30; Page 43, line 4 through Page 45, line 14);

defining a plurality of unique names for each of the plurality of attributes, each of the plurality of unique names uniquely identifying the object class to which a particular attribute belongs (e.g., Page 15, lines 9-17; Page 16, line 26 through Page 17; Page 19, lines 5-21); and

generating an index based on the plurality of unique names (e.g., Page 15, lines 9-17; Page 16, line 26 through Page 17).

As still another example, dependent Claim 2 recites:

the object classes are a subclass of an abstract object class (e.g., Page 41, lines 3-12).

Claims 8 and 14 recite certain analogous operations.

As still another example, dependent Claim 6 recites:

providing specific attributes which relate to one object class for a purpose of enhancing searching (e.g., Page 16, line 26 through Page 17).

Claim 12 recites certain analogous operations.

Grounds of Rejection to be Reviewed on Appeal

Are Claims 1-17 unpatentable under 35 U.S.C. § 103(a) over U.S. Patent Application Publication No. 2002/0019827 issued to Shiman, et al., ("*Shiman*") in view of U.S. Patent Application Publication No. 2004/0002955 issued to Gadbois ("*Gadbois*")?

Arguments

Claims 1-17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0019827 issued to Shiman, et al., (“*Shiman*”) in view of U.S. Patent Application Publication No. 2004/0002955 issued to Gadbois (“*Gadbois*”). For at least the following reasons, Appellants respectfully submit that these rejections are improper and should be reversed by the Board. Appellants address independent Claims 1, 7, and 13 and dependent Claims 2, 6, 8, 12, and 14 below.

I. Legal Standard for Obviousness

The question raised under 35 U.S.C. § 103 is whether the prior art taken as a whole would suggest the claimed invention taken as a whole to one of ordinary skill in the art at the time of the invention. One of the three basic criteria that must be established by an Examiner to establish a *prima facie* case of obviousness is that “the prior art reference (or references when combined) must teach or suggest ***all the claim limitations***.” See M.P.E.P. § 706.02(j) citing *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991) (emphasis added). “***All words*** in a claim must be considered in judging the patentability of that claim against the prior art.” See M.P.E.P. § 2143.03 citing *In re Wilson*, 424 F.2d 1382, 1385 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970) (emphasis added).

In addition, even if all elements of a claim are disclosed in various prior art references, which is certainly not the case here as discussed below, the claimed invention taken as a whole still cannot be said to be obvious without some reason why one of ordinary skill at the time of the invention would have been prompted to modify the teachings of a reference or combine the teachings of multiple references to arrive at the claimed invention.

The controlling case law, rules, and guidelines repeatedly warn against using an applicant’s disclosure as a blueprint to reconstruct the claimed invention. For example, the M.P.E.P. states, “The tendency to resort to ‘hindsight’ based upon applicant’s disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.” M.P.E.P. § 2142.

The U.S. Supreme Court’s decision in *KSR Int’l Co. v. Teleflex, Inc.* reiterated the requirement that Examiners provide an explanation as to why the claimed invention would have been obvious. *KSR Int’l Co. v. Teleflex, Inc.*, 127 S.Ct. 1727 (2007). The analysis

regarding an apparent reason to combine the known elements in the fashion claimed in the patent at issue “should be made explicit.” *KSR*, 127 S.Ct. at 1740-41. “Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Id.* at 1741 (internal quotations omitted).

The new examination guidelines issued by the PTO in response to the *KSR* decision further emphasize the importance of an explicit, articulated reason why the claimed invention is obvious. Those guidelines state, in part, that “[t]he key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in *KSR* noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit.” *Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in View of the Supreme Court Decision in KSR International Co. v. Teleflex Inc.*, 72 Fed. Reg. 57526, 57528-29 (Oct. 10, 2007) (internal citations omitted). The guidelines further describe a number of rationales that, in the PTO’s view, can support a finding of obviousness. *Id.* at 57529-34. The guidelines set forth a number of particular findings of fact that must be made and explained by the Examiner to support a finding of obviousness based on one of those rationales. *See id.*

II. Claims 1, 3-5, 7, 9-11, 13, and 15-17 are Allowable over the Proposed *Shiman-Gadbois* Combination

Independent Claim 1 of the present Application, as amended, recites:

A method for use in a Web Services system, comprising:
providing a Web Services Directory having object classes and attributes; and
defining attributes of a specific type which correspond to a specific object class, each attribute unique to the specific object class to which the attribute belongs; and
generating an index based on the specific attribute types.

This combination of features and operations is not disclosed, taught, or suggested in the proposed *Shiman-Gadbois* combination.

- A. **The proposed *Shiman-Gadbois* combination does not disclose, teach, or suggest “defining attributes of a specific type which correspond to a specific object class, each attribute unique to the specific object class to which the attribute belongs”**

As at least a first point of error, the proposed *Shiman-Gadbois* combination does not disclose, teach, or suggest “defining attributes of a specific type which correspond to a specific object class, each attribute unique to the specific object class to which the attribute belongs,” as recited in Claim 1. In the *Final Office Action*, the Examiner identifies *Shiman* as disclosing the recited claim elements. (*Final Office Action*, page 2). Although *Shiman*, which is relied upon as the primary reference, discloses that “[a]ttributes are characteristics of a database “object class” (*Shiman*, page 1, paragraph 9), there is no suggestion in *Shiman* that the each attribute is unique to specific object class to which the attribute belongs.

Rather, *Shiman* merely discloses:

An object class defines a type of object comprised of certain attributes. Classes are abstract, specifying a type of object that may be created. Objects are discrete manifestations of object classes. In general, objects are metaphors for objects are defined by the values of their attributes in their abstract object class. In general, objects are metaphors for tangible entities, such as people and documents; these objects are defined by the values of their attributes in their abstract object class. Persons have names, haircolor, height, and weight. A person’s unique identify is the collection of these attribute values. Every object can be indexed by the value of its primary key attribute, a unique name for the object.

(*Shiman*, page 1, paragraph 9). Thus, *Shiman* only indicates that an object class includes certain attributes and that **the collection** of these attributes values may be used to uniquely identify the object. For example, *Shiman* indicates that within an object class for people, the attributes of name, haircolor, height, and weight may be used to uniquely identify a person, when considered **collectively**. However, disclosing that an object class includes certain attributes is not analogous to disclosing that an only one object class includes certain attributes.

Appellants’ claim language specifically requires that each attribute is unique to the specific **object class** to which the attribute belongs. The *Advisory Action* states that “[i]t is well known in the art that a primary key attribute uniquely identifies an object class.”

(*Advisory Action*, page 2). However, the *Advisory Action* provides no evidence for such statement. The *Advisory Action* further states, “The VALUE of the primary key attribute (i.e., red hair) uniquely identifies a specific object (i.e., a person named John), while the actual primary key attribute (i.e., hair color) uniquely identifies the object class (i.e., people).” (*Advisory Action*, page 2). Appellants disagree. A primary key attribute identifying a person as having “red hair” does not uniquely identify that person since multiple people may have red hair. Additionally, while *Shiman* discloses that the people object class may include attributes for name, haircolor, height, and weight, there is no disclosure in *Shiman* that object classes other than the people object class cannot also include these same attributes. To the contrary, and as one example, an object class for businesses might also include a name attribute. As another example, an object class for pets would likely also include attributes for name, haircolor, height, and/or weight. There is simply no disclosure in *Shiman* of “defining attributes of a specific type which correspond to a specific object class, **each attribute unique to the specific object class to which the attribute belongs,**” as recited in Appellants’ independent Claim 1.

Finally, although *Shiman* discloses a primary key attribute for indexing, *Shiman* specifies that the primary key attribute is a unique name **for the object**. *Shiman* does not specify that the attribute is unique to the **object class**, as recited in Appellants’ claim. Specifying a value that is unique for an object is not the same as specifying that the attribute or the value is unique to the object class.

Accordingly, Appellants respectfully contend that *Shiman* does not disclose, teach, or suggest “defining attributes of a specific type which correspond to a specific object class, each attribute unique to the specific object class to which the attribute belongs,” as recited in Claim 1. *Gadbois*, which is relied upon only for disclosure of a web services directory, does not cure the deficiencies of *Shiman* identified above.

B. The Proposed *Shiman-Gadbois* Combination is Improper

Appellants respectfully submit that the proposed *Shiman-Gadbois* combination is improper. Specifically, Appellants submit that one of ordinary skill in the art at the time of Appellants’ invention would not have been motivated to modify or combine the cited

references in the manner the Examiner proposes. Appellants respectfully submit that these rejections are, therefore, improper and should be reversed by the Board.

The question raised under 35 U.S.C. § 103 is whether the prior art taken as a whole would suggest the claimed invention taken as a whole to one of ordinary skill in the art at the time of the invention. Accordingly, even if all elements of a claim are disclosed in various prior art references, which is certainly not the case here as discussed above, the claimed invention taken as a whole cannot be said to be obvious without some reason given in the prior art why one of ordinary skill at the time of the invention would have been prompted to modify the teachings of a reference or combine the teachings of multiple references to arrive at the claimed invention.

In this case, the Examiner has not provided the requisite teaching, suggestion, or motivation, either in the cited references or in the knowledge generally available to one of ordinary skill in the art at the time of Appellants' invention to modify or combine *Shiman* with the disclosure of *Gadbois*. As the basis for the proposed combination, the Examiner summarily concludes that "[i]t would have been obvious" to modify *Shiman* "by the teaching of *Gadbois* because a web services directory would enable a registry service to help support the storage and retrieval of data and enable authentication, which would provide secure access to Internet services and applications (*Gadbois*, paragraphs 24 and 25)." (*Final Office Action*, page 3). Thus, it appears that the Examiner has merely proposed alleged advantages of modifying *Shiman* to include features of *Gadbois* (advantages which Appellants do not admit could even be achieved by combining these references in the manner the Examiner proposes). While the Examiner has cited a portion of *Gadbois* that touts an alleged advantage of the *Gadbois* disclosure, the cited portion does not provide an explanation as to: (1) why it would have been obvious to one of ordinary skill in the art at the time of Appellants' invention (without using Appellants' claims as a guide) to modify the particular techniques disclosed in *Shiman* with the cited disclosure of *Gadbois*; (2) how one of ordinary skill in the art at the time of Appellants' invention would have actually done so; and (3) how doing so would purportedly meet the limitations of Appellants' claims. Indeed, if it were sufficient for Examiners to merely point to a purported advantage of one reference and conclude that it would have been obvious to modify other references with that reference simply based on that advantage, then virtually any two or more references would be combinable just based on the fact that one reference states an advantage of its system. Of course, as the Federal Circuit has made clear and as discussed above, that is not the law.

For at least these reasons, Appellants submit that the rejection of Appellants' claims over the proposed *Shiman-Gadbois* combination is improper.

C. Conclusion

For these reasons, Appellants respectfully submit that Claim 1, together with Claims 3-5 that depend on Claim 1, are allowable over the proposed *Shiman-Gadbois* combination. Similar to Claim 1, independent Claims 7 recites "code for defining attributes of a specific type which correspond to a specific object class, each attribute unique to the specific object class to which the attribute belongs." Independent Claim 13 recites "defining a plurality of unique names for each of the plurality of attributes, each of the plurality of unique names uniquely identifying the object class to which a particular attribute belongs." As such, for at least those reasons discussed above with regard to Claim 1, Claims 7 and 13, together with Claims 9-11 and 15-17 that depend on Claims 7 and 13, respectively, are also patentably distinguishable from and allowable over the proposed *Shiman-Gadbois* combination.

III. Claims 2, 8, and 14 are Allowable over the Proposed *Shiman-Gadbois* Combination

Dependent Claims 2, 8, and 14 depend upon independent Claims 1, 7, and 13, respectively, which Appellants have shown above to be allowable. Accordingly, dependent Claims 2, 8, and 14 are not obvious over the proposed *Shiman-Gadbois* combination at least because Claims 2, 8, and 14 include the limitations of their respective independent claims. Dependent Claims 2, 8, and 14 are additionally allowable because the claims recite claim elements that further distinguish the art.

A. The proposed *Shiman-Gadbois* combination does not disclose, teach, or suggest "the object classes are a subclass of an abstract object class"

As at least one additional point of error, the proposed *Shiman-Gadbois* combination does not disclose, teach, or suggest that "the object classes are a subclass of an abstract object class," as recited in Claims 2, 8, and 14. In the *Final Office Action*, the Examiner relies on *Shiman* for disclosure of the recited claim elements. (*Final Office Action*, page 3). However, *Shiman* merely discloses:

Attributes are characteristics of a database "object class." An object class defines a type of object comprised of certain attributes. Classes are abstract, specifying a type of object that may be created. Objects are discrete manifestations of object classes. In general, objects are metaphors for tangible entities, such as people and documents; these objects are defined by the values of their attributes in their abstract object class . . .

(*Shiman*, page 1, paragraph 9). Thus, *Shiman* merely discloses that classes of objects "are abstract" and, thus, specify "a type of object that may be created." (*Shiman*, page 1, paragraph 9). Thus, "objects are defined by the values of their attributes in their abstract object class." (*Shiman*, page 1, paragraph 9). Accordingly, while *Shiman* discloses abstract object classes, there is no disclosure in *Shiman* that any of such abstract object classes are a sub-classes of an abstract object class. There is no disclosure at all of sub-classes.

Accordingly, *Shiman* and the proposed *Shiman-Gadbois* combination as relied upon by the Examiner does not disclose, teach, or suggest that "the object classes are a subclass of an abstract object class," as recited in Claims 2, 8, and 14.

B. The Proposed *Shiman-Gadbois* Combination is Improper

Appellants respectfully submit that the proposed *Shiman-Gadbois* combination is improper as applied to Claims 2, 8, and 14. Specifically, Appellants submit that one of ordinary skill in the art at the time of Appellants' invention would not have been motivated to modify or combine the cited references in the manner the Examiner proposes. Appellants respectfully submit that these rejections are, therefore, improper and should be reversed by the Board.

The question raised under 35 U.S.C. § 103 is whether the prior art taken as a whole would suggest the claimed invention taken as a whole to one of ordinary skill in the art at the time of the invention. Accordingly, even if all elements of a claim are disclosed in various prior art references, which is certainly not the case here as discussed above, the claimed invention taken as a whole cannot be said to be obvious without some reason given in the prior art why one of ordinary skill at the time of the invention would have been prompted to modify the teachings of a reference or combine the teachings of multiple references to arrive at the claimed invention.

In this case, the Examiner has not provided the requisite teaching, suggestion, or motivation, either in the cited references or in the knowledge generally available to one of ordinary skill in the art at the time of Appellants' invention to modify or combine *Shiman* with the disclosure of *Gadbois*. As stated above, the Examiner summarily concludes that "[i]t would have been obvious" to modify *Shiman* to include features disclosed in *Gadbois* "because a web services directory would enable a registry service to help support the storage and retrieval of data and enable authentication, which would provide secure access to Internet services and applications (*Gadbois*, paragraphs 24 and 25)." (*Final Office Action*, page 3).

Again, it appears that the Examiner has merely proposed alleged advantages of modifying *Shiman* to include features of *Gadbois* (advantages which Appellants do not admit could even be achieved by combining these references in the manner the Examiner proposes). While the Examiner has cited a portion of *Gadbois* that tout an alleged advantage of the disclosures, the cited portion does not provide an explanation as to: (1) why it would have been obvious to one of ordinary skill in the art at the time of Appellants' invention (without using Appellants' claims as a guide) to modify the particular techniques disclosed in *Shiman* with the cited disclosure of *Gadbois*; (2) how one of ordinary skill in the art at the time of Appellants' invention would have actually done so; and (3) how doing so would purportedly meet the limitations of Appellants' claims. Indeed, if it were sufficient for Examiners to merely point to a purported advantage of one reference and conclude that it would have been obvious to modify other references with that reference simply based on that advantage, then virtually any two or more references would be combinable just based on the fact that one reference states an advantage of its system. Of course, as the Federal Circuit has made clear and as discussed above, that is not the law.

For at least these reasons, Appellants submit that the rejection of Appellants' claims over the proposed *Shiman-Gadbois* combination is improper.

C. Conclusion

For these reasons, Appellants respectfully submit that Claims 2, 8, and 14 are allowable over the proposed *Shiman-Gadbois* combination.

IV. Claims 6 and 12 are Allowable over the Proposed *Shiman-Gadbois* Combination

Dependent Claims 6 and 12 depend upon independent Claims 1 and 7, respectively, which Appellants have shown above to be allowable. Accordingly, dependent Claims 6 and 12 are not obvious over the proposed *Shiman-Gadbois* combination at least because Claims 6 and 12 include the limitations of their respective independent claims. Dependent Claims 6 and 12 are additionally allowable because the claims recite claim elements that further distinguish the art.

A. The proposed *Shiman-Gadbois* combination does not disclose, teach, or suggest “providing specific attributes which relate to one object class for a purpose of enhancing searching”

As at least one additional point of error, the proposed *Shiman-Gadbois* combination does not disclose, teach, or suggest “providing specific attributes which relate to one object class for a purpose of enhancing searching,” as recited in Claims 6 and 12. In the *Final Office Action*, the Examiner cites both *Shiman* and *Gadbois* for disclosure of the recited claim elements. (*Final Office Action*, page 4). As discussed above with regard to Claim 1, however, *Shiman* only indicates that an object class includes certain attributes and that the collection of these attributes values may be used to uniquely identify the object. For example, *Shiman* indicates that within an object class for people, the attributes of name, haircolor, height, and weight may be used to uniquely identify a person, when considered collectively. Disclosing that an object class includes certain attributes is not analogous to providing specific attributes which relate to one object class for a purpose of enhancing searching.

For example, there is no disclosure in *Shiman* that object classes other than the people object class cannot also include an attribute for name, haircolor, height, or weight. Accordingly, where the attribute system disclosed in *Shiman* is additionally applied to an object class for businesses, such an object class might also include a name attribute. Additionally, although *Shiman* discloses a primary key attribute for indexing, *Shiman* specifies that the primary key attribute is a unique name for the specific object. *Shiman* does not specify that the attribute is unique to the object class, as recited in Appellants’ claim. Accordingly, Appellants respectfully contend that *Shiman* does not disclose, teach, or suggest “providing specific attributes which relate to one object class for a purpose of enhancing searching,” as recited in Claims 6 and 12.

Gadbois does not cure the deficiencies of *Shiman* identified above. The cited portion of *Gadbois* merely discloses:

One role of a registry service is to support the storage and retrieval of data. In operation, a user at access system 180 accesses registry server 130 by sending an initial message to registry server 130 via network coupling 185. Then, depending on the content of the message, registry server 130 accesses directory server 150, for example, to perform certain functions indicated by the message. If information stored at directory server 150 is changed, the changed information is then made available to other registry servers such as registry servers 110 and 120. Often, more than one message passes between registry server 130 and directory server 150 before a result message can be provided to the user at access server 180 by registry server 130 responsive to the initial message from the user.

(*Gadbois*, page 2, paragraph 25). Thus, *Gadbois* merely discloses that users may access the registry for the retrieval of data. To the extent that the cited portion allows a user to “search” the registry for data, there is no disclosure in *Gadbois* of object classes or that specific attributes relate to one object class. As such, the additional search functions disclosed in *Gadbois* do not cure the deficiencies of *Shiman*.

Accordingly, Appellants respectfully contend that neither *Shiman* nor *Gadbois* (nor their proposed combination) disclose, teach, or suggest “providing specific attributes which relate to one object class for a purpose of enhancing searching,” as recited in Claims 6 and 12.

B. The Proposed *Shiman-Gadbois* Combination is Improper

Appellants respectfully submit that the proposed *Shiman-Gadbois* combination is improper as applied to Claims 6 and 12. Specifically, Appellants submit that one of ordinary skill in the art at the time of Appellants’ invention would not have been motivated to modify or combine the cited references in the manner the Examiner proposes. Appellants respectfully submit that these rejections are, therefore, improper and should be reversed by the Board.

The question raised under 35 U.S.C. § 103 is whether the prior art taken as a whole would suggest the claimed invention taken as a whole to one of ordinary skill in the art at the time of the invention. Accordingly, even if all elements of a claim are disclosed in various prior art references, which is certainly not the case here as discussed above, the claimed invention taken as a whole cannot be said to be obvious without some reason given in the prior art why one

of ordinary skill at the time of the invention would have been prompted to modify the teachings of a reference or combine the teachings of multiple references to arrive at the claimed invention.

In this case, the Examiner has not provided the requisite teaching, suggestion, or motivation, either in the cited references or in the knowledge generally available to one of ordinary skill in the art at the time of Appellants' invention to modify or combine *Shiman* with the disclosure of *Gadbois*. As stated above, the Examiner summarily concludes that "[i]t would have been obvious" to modify *Shiman* to include features disclosed in *Gadbois* "because a web services directory would enable a registry service to help support the storage and retrieval of data and enable authentication, which would provide secure access to Internet services and applications (*Gadbois*, paragraphs 24 and 25)." (*Final Office Action*, page 3).

Again, it appears that the Examiner has merely proposed alleged advantages of modifying *Shiman* to include features of *Gadbois* (advantages which Appellants do not admit could even be achieved by combining these references in the manner the Examiner proposes). While the Examiner has cited a portion of *Gadbois* that tout an alleged advantage of the disclosures, the cited portion does not provide an explanation as to: (1) why it would have been obvious to one of ordinary skill in the art at the time of Appellants' invention (without using Appellants' claims as a guide) to modify the particular techniques disclosed in *Shiman* with the cited disclosure of *Gadbois*; (2) how one of ordinary skill in the art at the time of Appellants' invention would have actually done so; and (3) how doing so would purportedly meet the limitations of Appellants' claims. Indeed, if it were sufficient for Examiners to merely point to a purported advantage of one reference and conclude that it would have been obvious to modify other references with that reference simply based on that advantage, then virtually any two or more references would be combinable just based on the fact that one reference states an advantage of its system. Of course, as the Federal Circuit has made clear and as discussed above, that is not the law.

For at least these reasons, Appellants submit that the rejection of Appellants' claims over the proposed *Shiman-Gadbois* combination is improper.

C. Conclusion

For these reasons, Appellants respectfully submit that Claims 6 and 12 are allowable over the proposed *Shiman-Gadbois* combination.

CONCLUSION

Appellants have demonstrated that the present invention, as claimed, is clearly distinguishable over the prior art cited by the Examiner. Therefore, Appellants respectfully request the Board to reverse the final rejections and instruct the Examiner to issue a Notice of Allowance with respect to all pending claims.

The Commissioner is hereby authorized to charge \$540.00 for filing this Brief in support of an Appeal to Deposit Account No. 02-0384 of Baker Botts, L.L.P. No other fees are believed due; however, the Commissioner is authorized to charge any additional fees or credits to Deposit Account No. 02-0384 of Baker Botts, L.L.P.

Respectfully submitted,

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APPENDIX A

Pending Claims

1. A method for use in a Web Services system, comprising:
providing a Web Services Directory having object classes and attributes; and
defining attributes of a specific type which correspond to a specific object class, each attribute unique to the specific object class to which the attribute belongs; and
generating an index based on the specific attribute types.
2. The method as recited in claim 1, wherein the object classes are a subclass of an abstract object class.
3. The method as recited in claim 1, wherein the specific object class relates to at least one of keyed references, names and classes.
4. The method as recited in claim 1, wherein the object class is an auxiliary object class.
5. The method as recited in claim 4, wherein the auxiliary object class is a Publisher Assertion Keyed Reference.
6. The method as recited in claim 5, further comprising providing specific attributes which relate to one object class for a purpose of enhancing searching.
7. A computer recording medium including computer executable code for use in a Web Services system, comprising:
code for providing a Web Services Directory having object classes and attributes; and
code for defining attributes of a specific type which correspond to a specific object class, each attribute unique to the specific object class to which the attribute belongs; and
code for generating an index based on the specific attribute types.
8. The computer recording medium as recited in claim 7, wherein the object classes are a subclass of an abstract object class.

9. The computer recording medium as recited in claim 7, wherein the specific object class relates to at least one of keyed references, names and classes.

10. The computer recording medium as recited in claim 7, wherein the object class is an auxiliary object class.

11. The computer recording medium as recited in claim 10, wherein the auxiliary object class is a Publisher Assertion Keyed Reference.

12. The computer recording medium as recited in claim 11, further comprising code for providing specific attributes which relate to one object class for a purpose of enhancing searching.

13. A method for use in a Web Services system, comprising:
providing a Web Services Directory having a plurality of object classes, the plurality of object classes having a plurality of attributes, each attribute unique to an object class;
defining a plurality of unique names for each of the plurality of attributes, each of the plurality of unique names uniquely identifying the object class to which a particular attribute belongs; and
generating an index based on the plurality of unique names.

14. The method as recited in claim 13, wherein the plurality of object classes comprise subclasses of an abstract object class.

15. The method as recited in claim 13, wherein each of the plurality of object classes relate to at least one of keyed references, names and classes.

16. The method as recited in claim 13, wherein the plurality of object classes comprise auxiliary object classes.

17. The method as recited in claim 16, wherein the auxiliary object classes comprise Publisher Assertion Keyed References.

APPENDIX B

Evidence Appendix

Other than the references attached to this Appeal Brief as Appendices A and B, no evidence was submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132, and no other evidence was entered by the Examiner and relied upon by Appellants in the Appeal.

APPENDIX C

Related Proceedings Appendix

As stated on Page 3 of this Appeal Brief, to the knowledge of Appellants' Counsel, there are no known appeals, interferences, or judicial proceedings that will directly affect or be directly affected by or have a bearing on the Board's decision regarding this Appeal.